

east and southeast gales occurred at all stations along the coast from Delaware Breakwater northward. While both Atlantic City and New York City reported a maximum velocity of 64 miles an hour, the velocity of 52 miles an hour from the east at Portland, Me., indicated that the storm was most severe in that locality. Due to the exposure of the anemometer at Portland the maximum wind velocity there seldom reaches 50 miles an hour.

The next disturbance to cause strong winds along the Atlantic coast was that of the 18th-19th, for which storm warnings were displayed along the New England coast the evening of the 18th. Again on the 20th warnings were displayed from Delaware Breakwater to Nantucket, Mass., in connection with a disturbance that moved rapidly eastward from Lake Erie to the southern New England coast.

At 8 p. m. of the 21st a disturbance of considerable energy was over the upper Ohio Valley and the southern Lake region and moving eastward, and southeast storm warnings were issued at 9:30 p. m. for the Atlantic coast from Cape Hatteras northward. These warnings were fully verified, the highest velocity reported being 56 miles an hour from the northwest at New York City.

The last storm warnings of the month were ordered during the afternoon and evening of the 30th from the Virginia Capes to Eastport, Me., in connection with a disturbance of marked intensity that moved rapidly from the lower Ohio Valley to New England. Several stations reported maximum velocities of between 45 and 50 miles an hour from the southeast.

Frost warnings were issued for portions of the South Atlantic and East Gulf States on the 1st and 2d, but no further warnings for the Southeastern States were required during the month, and none for any section until the 17th. During the week beginning on that date warnings were issued for limited areas in the Ohio Valley and the Middle Atlantic States.—*Charles L. Mitchell.*

CHICAGO FORECAST DISTRICT

The month, as a whole, was moderately warm and dry in the central and southern portions of the district, and wet and cold from northern Lake Michigan westward and northwestward across the Red River of the North Valley.

Special warnings issued during April were chiefly confined to those in anticipation of frost, but the season was somewhat later than the average, and, in consequence, warnings were not of much importance.

The principal storm of the month appeared beyond the Rockies on the 13th, and gradually developed and moved eastward, the center reaching the Middle Missouri Valley on the 15th, the Middle Mississippi Valley on the 16th, and the northern Lake region on the 17th. Heavy snow accompanied the storm in the Rocky Mountain region and northern Plains, and cold weather followed in its rear, frost being reported on the 18th to the southern limits of the region.

Livestock warnings were sent on the 15th to Nebraska and Wyoming; advices of frost to various points as occasion demanded; also advisory messages to open ports on Lake Michigan for strong shifting winds. The regular season for navigation did not commence until April 20.—*H. J. Cox.*

NEW ORLEANS FORECAST DISTRICT

The weather during April, 1924, was marked by several well-defined troughs of low pressure, which generally weakened in passing eastward over this district; but the last trough of the month, passing eastward on the 28th-30th, increased in intensity.

The month opened with cool weather and extensive frosts in the interior sections, but thereafter the areas of high pressure following the troughs did not carry cold weather far southward, frosts being generally limited to the northwestern portion and freezing temperature to the extreme northwestern portion of the district. Ample notice was given for all frosts and freezes and warnings were sent also to stockmen for the freezes that occurred in the Texas Panhandle and northwestern Oklahoma on the 17th and 26th. The dates of frost warnings, which were issued mostly for the northwestern portion of the district and occasionally for northern Arkansas, were the 1st, 9th, 17th, 18th, 26th, 29th, and 30th.

On the morning of the 25th, in the southern end of a long trough of low pressure, a disturbance appeared over the Rio Grande Valley. Southeast storm warnings were issued at 8:30 a. m. for strong southerly winds and squalls on the Texas coast. The wind increased considerably and moderate to fresh gales occurred during the afternoon, though the morning and night weather maps showed only moderate pressure gradient, and the storm diminished in intensity thereafter. There were no storms without warnings. Small craft warnings were advised for the Texas coast on the 15th, 16th, 25th, and 26th.

Fire-weather warnings were sent to addresses in Oklahoma and Arkansas on the 15th and 24th and conditions occurred as forecast.—*R. A. Dyke.*

DENVER FORECAST DISTRICT

On the morning of the 15th a pronounced area of low pressure was central over southeastern Wyoming, while the barometer was moderately high and rising over the North Pacific States. Cold wave and livestock warnings were issued for northern and eastern Colorado and northwestern Arizona, and livestock warnings alone for northern New Mexico. The ensuing weather was in full agreement with the warnings.

Another pronounced low-pressure area began crossing the district from the west on the 23d, being followed by high pressure from the northwest, consequently forecasts of rain turning to snow and colder weather were issued for the sections within its influence, timed to accord approximately with the pressure movements. Pressure gradients intensified during the day and night sufficient to produce a cold wave in northeastern Colorado.

Another disturbance, which manifested but little energy in crossing the district, developed marked energy by the morning of the 29th over southern Kansas and Oklahoma, while a high was building up to the northwest, consequently livestock warnings were issued for eastern Colorado for colder weather, with snow. The ensuing fall in temperature was comparatively small and precipitation was mostly rain on the lower ranges, but snow on the more elevated ones.

Frosts and temperatures near or below freezing were of very frequent occurrence during the month, and the number of warnings to interested districts was correspondingly great.

Warnings were already being issued at the beginning of the month for the fruit districts in which protective measures are taken in southern New Mexico, and fruit advanced so as to become susceptible to injury by April 9th in southeastern Colorado, by the 12th in the Colorado Valley in Colorado, and about the 29th in the Gunnison Valley in Colorado.

Warnings of expected frosts of a less serious character were issued as follows:

For all of southern New Mexico on the 16th, 17th, 25th, and 26th; for extreme southeastern New Mexico on the